Space Weather Forecast

Issued on Wednesday, 23 March 2022 at 13:07 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of elevated geomagnetic activity on Thursday. Otherwise, mainly quiet.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has risen slightly over the past 24 hours, with occasional small common-class flares observed. The largest of these very minor flares appeared to emanate from a new sunspot region in the Sun's southeast. There are also a few other sunspots visible on the disc but are largely quiet. No Earth-directed Coronal Mass Ejections (CMEs) were observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was slightly elevated through the period, with a few transient features running through but these did not amount to any significant geomagnetic activity. As a result, it remained mainly Quiet (Kp1-2) with a couple of isolated Unsettled periods (Kp3) between 22/1800-2100 UTC and 23/0900-1200UTC.

Energetic Particles / Solar Radiation: Solar radiation in the near-Earth environment was at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to continue Low, with a 60% likelihood of further isolated Common-class flares and a 15% slight chance of isolated Moderate-class flares, with most of activity likely associated with sunspot regions now rotating into view.

Solar Wind / Geomagnetic Activity: There is one possible weak Earth-directed CME in the forecast, potentially giving Earth a glancing blow on late Day 2 (24 March). There is also a likelihood of a slight coronal hole elevated wind due on the same day, perhaps early on. Separately, these events are not likely to be significant, but will encourage geomagnetic activity, perhaps to Active (Kp4) with a decreasing trend through Day 3 onwards (25 March). Geomagnetic activity should therefore be mainly Quiet throughout the period with a likelihood of Unsettled or Active (Kp3-4) periods on Day 2.

Energetic Particles / Solar Radiation: Solar radiation levels should remain at background levels throughout the four day period.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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